REMARKS

The Office Action mailed November 21, 2002 has been reviewed and carefully considered. Claims 14, 17 and 19 have been amended. Claims 14 to 26 are pending in this application, with claim 14 being the independent claim. Reconsideration of the above-identified application, as amended, and in view of the following remarks is respectfully requested.

It is noted that the file does not contain a Patent Drawing Review by the Patent Office Draftsperson. It is requested that this Review be undertaken and a Review by the Draftsperson be issued in response to this Amendment.

Enclosed herewith is an Information Disclosure Statement. Acknowledgement of consideration of the cited references is requested.

The specification has been amended in response to the Examiner's objection. It is noted that on page 5, the objected to paragraph beginning on line 8 was deleted in the Preliminary Amendment dated August 31, 2001, filed with the application. Nevertheless, this paragraph is being deleted herein.

Enclosed herewith is a Terminal Disclaimer and a Certificate Under 37 CFR 3.73(b) in response to the provisional double patenting rejection.

In the Office Action mailed November 21, 2002, claims 14, 15 19 and 23 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The claims have been appropriately amended. Note that in claim 19, only a comma has been deleted.

Before discussing the prior art and the Examiner's rejections of the claims in view of the prior art, a brief summary of the present invention is appropriate. The invention, as recited in independent claim 14, relates to controlling moisture content over an entire production line of a web as it is being dried after having been coated. To accomplish this purpose, a mathematical submodel is provided for every drying unit effecting the moisture content of the web. These submodels are then joined together to form a composite model that describes the wetting of the web and the evaporation over the whole production line. In the submodels, all process parameters are set as variables, and if one of the parameters (for example, web speed) changes, new values for every variable is calculated. Thus, the submodel calculates the moisture content of the web after a dryer automatically when a change in process occurs so that the moisture content of the web after each dryer is known. No actual measurement of the moisture content is needed. Basically, the whole process could be operated without measurement of moisture

content, although it is advisable to measure final moisture content before winding. The final moisture content value can be used as an auxiliary or a control value. The idea of the invention, as recited in independent claim 14, is to link all individual mathematical submodels for each dryer into a single composite model describing the behavior of the process as whole. Such a system reacts to changes in process conditions so that evaporation rates of each dryer is set so that final moisture content assumes the desired value.

In earlier processes, the moisture content of the web was measured after each dryer and coater, and the drying effect of each dryer was controlled separately. In such a process, each dryer had to have sufficient capacity to evaporate sufficient water for all possible process conditions, which required that the dryers must be unnecessarily powerful. Also, since each apparatus was controlled separately, subsequent apparatuses had to react on the original process change as well as process changes caused by reaction of the preceding apparatus on the same change, possibly leading to fluctuation and, if it is compensated, to a slow reaction to the changes. However, in the invention recited in independent claim 14, it is not necessary to control each dryer so that the moisture content after that dryer is adjusted to a particular fixed value, irrespective of the other process parameters and the drying capacities of other dryers. Instead, because all dryers in the line are controlled, each dryer can be controlled to dry to whatever the extent needed so that the final moisture value after drying by all of the dryers in the line is obtained. This is a very valuable feature since the moisture content of the web can be kept in optimum level over the whole production process, and drying effect of the production line can be assigned to particular dryers that have the needed capacity available.

Claims 14 and 15 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,087,568 ("Fay"). Fay discloses a control process in which only one coater and one dryer is used. Even though the process uses sophisticated mathematics for calculating the process values, the system is still a normal closed loop control system wherein the drying effect of the dryer is adjusted in accordance with an actual moisture measurement after drying -- the moisture content is measured before stacking or rolling of the web, and the air velocity needed in the dryer to evaporate desired amount of moisture is calculated on basis of a measured result and other process variables. Because Fay describes a process for controlling a single dryer, Fay does not disclose or suggest providing a drying model for a larger production line comprising several dryers, or even how the control of multiple dryers could be performed, as recited in independent

claim 14. Also, according to the invention as recited in independent claim 14, the evaporation rate for each of the multiple dryers is calculated according to a mathematical model, not based upon an actual measurement of the web immediately after the particular dryer, as is done in Fay. In the invention of independent claim 14, the model is a mathematical description of the process itself. The process described by Fay would not operate without an actual measurement of web dryness immediately after the single dryer.

For the foregoing reasons, applicants respectfully submit that independent claim 14 is patentable. Dependent claims 15 to 26 are patentable for the same reasons that independent claim 14 is patentable. Applicants respectfully submit that this application is in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

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